

AUSTRALIAN FORMICIDAE.

NOTES AND NEW SPECIES.

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PLATE XIII.

In this paper nineteen new species, representing four sub-families are described and figured, and a new genus has been created to contain a number of the species.

Recent investigations in the genus *Phyracaces* revealed a well defined group of large species whose workers possess ocelli. As the workers in this genus are characterized as having no ocelli, a new genus *Neophyracaces* gen. nov. is erected to contain the species whose workers possess ocelli, as it is evident that they cannot be maintained in *Phyracaces*. The genotype selected is *Pyhracaces clarus* Clark, all phases of this species being known. At present fifteen species are included in the new genus, four of these are described herein. Both genera have a similar distribution, being found in each of the States except Tasmania. At present no species of *Cerapachyinae* is recorded from Tasmania. Several species of *Phyracaces* are found near the sea coast, but they are more common and abundant in the dry and warm inland area. All appear to be robber ants and most of the species have been found whilst they were raiding the nests of other ants. Some interesting observations on their habits have been contributed to this paper by Mr. H. Potter, a keen naturalist and observer in Northern Victoria. During the past few years Mr. Potter has made some interesting discoveries concerning the ants and their habits, and as a result of his labour several species are described herein.

It is interesting to note that the four species of robber ants discovered by Mr. Potter proved to be new species. One of these, *Neophyracaces potteri* sp. nov., confines its attention to a species of the genus *Iridomyrmex*; this species also is new, (*Iridomyrmex viridigaster* sp. nov.). The following notes on *N. potteri* have been supplied by Mr. Potter from observations made on his farm in Northern Victoria:—

“During the afternoon of January 21st, a nest of this species was discovered near the gate leading into the sheep yard. Unlike most nests this one was inconspicuous and indicated only by a small hole in the ground; there was no

trace of the earth which had been excavated from below, and apparently the soil had been scattered some distance from the nest. A few workers, each with its abdomen raised upwards, were moving rapidly about. At 3 p.m., with the shade temperature at 90° Fahr., a large number of the ants was seen leaving the nest and travelling to a series of nest holes about twenty-two yards away. The series of nests belong to a small dark coloured ant (*Iridomyrmex viridigaster*). On reaching these nests the robbers did not hesitate, they went boldly in and apparently got little resistance as they soon emerged again each carrying a larva or pupa of the *Iridomyrmex* with which they returned to their own nests. Little or no order was maintained during the raids, each ant seemed to work independently, but a constant stream kept on coming with nothing and returning with larva or pupa. Later, at 4 p.m., there was no sign of the robbers near the nests which they had been robbing; apparently the raid had ceased. One robber ant was seen carrying an apparently injured companion back to their nest. When this ant was stopped about one foot away from the nest the injured ant was dropped, although able to walk it could not keep up with the others. The injured one was picked up again by her companion and carried into the nest.

“At 5 p.m. when again observed, some of the *Iridomyrmex* were attacking the robbers. The method of attack was similar in all cases. Several of the *Iridomyrmex* seized the antennae of the robbers whilst others seized the legs. After a short struggle the victim was helpless—several dead robbers were seen near. The *Iridomyrmex* not engaged with the robber ants were removing their larvae and pupae, taking them away in another direction.

“23 Jan., '34. The robber ants were seen running about but did not appear to be carrying anything. They were emerging from two holes about three feet apart.

“14 Feb., '34. At 2.30 p.m. with the temperature at 90° Fahr. in the shade, a few ants were seen out foraging not far from the second entrance to their nest, no sign of any near the first entrance. Half an hour later all had disappeared.

“20 Feb., '34. At 4 p.m. two ants were hunting near the first entrance. One walked into a line of *Iridomyrmex* travelling along not far from the entrance to the robbers' nest. The *Iridomyrmex* immediately attacked the intruder seizing it by the antennae and legs. Other three robbers had received a similar fate further along the line. On returning to the place at 6.30 p.m. only one robber was seen, there was

no trace of the other three prisoners. The ant still held by the *Iridomyrmex* was alive and did not appear to be much damaged. One of the robbers appeared at the second entrance but went in again. There was no sign of life at the nests which had been attacked by the robbers.

“28 Feb., '34. Robber ants busy at both entrances, bringing out small bits of earth with which they formed a ring round each entrance. The particles are finer than those usually brought out by ants of their size. Some, on coming out, deposited what they carried and hurriedly went back, others went foraging around a few feet from the nest, while one remained near the entrance scraping the earth back with her feet. When foraging they run with the head down, close to the ground and the abdomen raised above the thorax. They move very rapidly.

“2 March, '34. At 3 p.m. a few ants were out foraging. One was carrying a piece of straw-like material. On being touched the ant dropped its load and disappeared into a crack in the ground, in a short time it reappeared and returned for its load which it carried to the nest. The robbers have made a third entrance to their nest, the new hole is about one foot from the first entrance. The ants were seen to emerge and return by the new entrance. At 7 p.m. all three entrances were closed.”

Another of the ants discovered by Mr. Potter is a peculiar species which is placed in the genus *Melophorus* (*M. fulvihirtus* sp. nov.). Most of the known species of *Melophorus* are harvesting ants, collecting the seeds of grasses and small plants near the nest. The new species apparently does not collect seeds but appears to be a robber ant. Each occasion on which this ant has been seen, it was robbing the nests of the common “Meat Ant” (*Iridomyrmex detectus* Smith), probably the most pugnacious ant in Australia.

Mr. Potter has supplied the following notes regarding this robber ant:—

“In this district there is a colony of this ant in, or near every nest of the ‘Meat Ant’ (*Iridomyrmex detectus* Smith). Generally the nest is situated near the middle of the meat ant’s nest but sometimes in the ground alongside the nest. I have not found them more than a few feet away. The entrance to the nest is funnel-shaped and is not surrounded by a mound; apparently very little earth is excavated from below. At night the entrance is closed with small stones and earth. During cold weather the ants are not active but a few of the large workers are to be seen just inside the entrance

as though on guard. When the nest is disturbed the large workers come out to investigate but do not show fight.

"The raiding is done by the small workers. They run very fast and seem to work more or less singly, never in a body as is usual with robber ants. Frequently when leaving or returning to the nest they run about as though not sure of their direction. They work only during the hottest part of the day when the temperature rises above 90° Fahr. At this time the meat ant does not leave its nest. The large workers do not take part in the raids but remain at their own nest and, generally, are busily clearing the entrance. During the raids, which are continued for half an hour, workers of *I. detectus* are not to be seen.

"On one occasion while watching a raid I stamped on the meat ants' nest to see if they would attack the raiders. The meat ants rushed out and came in my direction but took no notice of the raiding ants."

In addition to the observations given above, notes are being compiled by Mr. Potter on other species of robber ants and some of the harvesting ants found in his district. They are of particular interest as the only ants known from that area are those collected by Mr. Potter.

Family **FORMICIDAE** Latreille.

Subfamily **Cerapachyinae** Forel.

Ann. Soc. Ent. Belg., xxxvii, p. 162, 1893.

Genus **PHYRACACES** Emery.

Rend. Accad. Sc. Inst., Bologna, p. 23, 1901-02.

Phyracaces crassus sp. nov.

Plate XIII, Fig. 1.

Worker. Length 7.5-8 mm.

Dark castaneous throughout, eyes and margins of thorax and node black. Shining. Mandibles coarsely and deeply punctate. Clypeus smooth. Head finely reticulate-rugose in front of eyes, smooth behind with large scattered punctures. Thorax, node and gaster with numerous scattered large shallow piligerous punctures.

Hair reddish, long and erect on head and body, shorter and suberect on antennae and legs. Pubescence grey, apparent only on funiculi.

Head as long as broad, broadest behind, occipital border feebly convex, sides more strongly convex, posterior angles sharp, a strong ridge extends along occipital border and is continued on the sides of the head to a point midway between the eyes and occipital border. Mandibles large and triangular, edentate, cutting edge sharp. Clypeus very short. Frontal carinae erect, narrowing behind, truncate then confluent to level with middle of eyes.

Carinae of cheeks strong, extending back level with the posterior margins of eyes. Eyes large and convex, placed at middle of sides. Scapes extend very slightly beyond posterior margins of eyes; second and third segments of funiculus equal in length, one-sixth longer than first, apical as long as the two preceding combined. Thorax one and one-half times longer than broad, as broad through epinotum as through pronotum, without traces of sutures. Pronotum broadly convex in front, strongly convex on sides, anterior angles sharp, the three borders strongly margined, mesonotal region strongly constricted, one-fourth narrower than pronotum, sides not margined. Epinotum strongly convex on sides, posterior border straight with a small sharp indentation in the middle, the angles sharp, the three borders strongly margined; in profile strongly convex longitudinally, without traces of sutures, declivity feebly convex, sides margined. Node one-third broader than long, broadest at the middle, anterior border straight, sides strongly convex, the three borders strongly margined, anterior angles sharp, posterior angles produced backward as broad sharp spines as long as broad at base; in profile as long as high, anterior face vertical, slightly concave, superior edge sharp, dorsum convex, rounded into the convex posterior face, dorsal margin straight to posterior fourth ending in a broad sharp spine directed backward and upward, almost twice as long as broad at base. Postpetiole one-fifth broader than long, broadest at middle, anterior border concave, submarginate, sides strongly convex, anterior half feebly margined, constriction deep and wide. First segment of gaster one-third broader than long, strongly convex on sides. Legs long and slender, posterior coxae with a broad translucent laminae.

Male and female unknown.

Habitat.—*Victoria*: Hattah (J. Clark, Sept. 1939).

The node of this species is similar to that of *P. grandis* Clark, from South Australia. The size, colour and other features are quite different. No nest of the species was seen; several workers were found foraging in the Mallee scrub.

Phyracaces dromus sp. nov.

PLATE XIII, Figs. 2, 3.

Worker. Length 4.2 mm.

Ferruginous; head, antennae and legs lighter, more yellowish, eyes and margins of thorax and node black.

Shining, microscopically reticulate throughout, numerous fine shallow piligerous punctures.

Hair yellow, erect, long and abundant, particularly on gaster, short and suberect on antennae and legs.

Head very slightly longer than broad, sides and occipital border convex, angles rounded. Mandibles short and broad, furnished with numerous short sharp teeth. Frontal carinae erect and parallel truncate behind, carinae of cheeks prominent, extending to anterior edge of eyes with a short branch extending inward near the apex. Eyes large, flatly convex, placed at middle of sides. Scapes extend to middle of eyes; first segment of funiculus as long as the second and third combined, second to ninth broader than long, apical bluntly pointed, as long as the three preceding combined. Thorax twice as long as broad, without traces of sutures, sides and posterior border sharply margined, anterior border feebly margined, angles blunt, posterior angles sharp; in profile convex longitudinally, a strong sharp ridge extends from the anterior superior angle down to the anterior inferior angle, epinotal declivity

straight, at an obtuse angle, sides sharply margined. Node one-fifth broader than long, broadest at middle, sides convex, strongly margined, anterior border concave, sharply produced, posterior angles produced backwards as short broad spines as long as broad at base; in profile anterior face convex, high, superior angle sharp, dorsum convex the margin almost straight, the angle behind produced upward and backward as a thin sharp spine. Postpetiole one-third broader than long, broadest behind, sides and front almost straight, feebly convex, angles rounded; constriction deep and wide. First segment of gaster one-fourth broader than long, sides strongly convex. Legs long and robust.

Female. Length 5.2 mm. (Ergatoid).

Larger and more robust than the worker. Colour, sculpture and pilosity similar. Ocelli prominent. Thoracic segments indicated but weakly developed, mesonotum and scutellum small. Node broader, one-third broader than long. Legs more robust.

Habitat.—*Victoria*: Patho (H. A. Potter).

A small colony was found whilst they were raiding the nest of a small black ant.

Genus NEOPHYRACACES gen. nov.

Worker. Antennae with twelve segments, apical segment large, as long as or longer than the two preceding combined. Eyes and ocelli large. Thorax and node strongly margined.

Female. Similar to the worker; winged or ergatoid.

Male. Similar to the male of *Phyracaces*.

Genotype *Phyracaces clarus* Clark.

Separated from *Phyracaces* by the workers possessing ocelli.

Neophyracaces potteri sp. nov.

Plate XIII, Figs. 4, 5.

Worker. Length 7.75 mm.

Bright reddish yellow throughout; the eyes, margins of the thorax and node black.

Smooth and shining, with scattered shallow piligerous punctures. Front of head and apical margins of segments of gaster microscopically reticulate.

Hair yellow, long, erect and abundant throughout, shorter and suberect on antennae and legs. Pubescence confined to apical segments of antennae, very fine, short and adpressed.

Head as long as broad, sides strongly convex, posterior angles broadly rounded, occipital border short and straight. Mandibles with numerous small fine teeth. Clypeus very short. Frontal carinae short and erect, parallel in front, truncate and converging behind, twice as long as broad. Carinae of cheeks prominent extending backward level with anterior margin of eyes. Eyes rather flatly convex, placed at the middle of sides. Ocelli large and prominent. Scapes extend backward to posterior margin of eyes; first segment of funiculus as long as broad, second to eleventh broader than long, apical pointed, as long as the three preceding combined. Thorax one and three-fourths times longer than broad, as broad behind as in front, strongly constricted at the mesonotal region, sutures feebly defined; pronotum much broader than long, sides and front strongly convex, the sides sharply margined,

epinotum twice as broad as long, sides convex, posterior border straight, sharply margined; in profile convex longitudinally, without traces of sutures, pronotum rounded downward in front, epinotal declivity at an obtuse angle, slightly longer than dorsum of epinotum from which it is divided by a sharp ridge. Node as broad as long, slightly broader behind than in front, dorsum and sides convex, sharply margined, anterior border concave, not margined, posterior border straight not margined, the angles produced backward as broad flat spines, bluntly pointed, as long as broad at base, the inner edge straight, the outer edge curved inward; in profile one-fourth longer than high, dome-shaped, anterior face convex, sharply margined by a continuation of the dorsal edge, sharp margin of dorsum feebly convex, slightly higher behind than in front, produced backward and upward as a long sharp spine, twice as long as broad at base; a short sharp spine on ventral surface in front, directed backwards. Postpetiole barely one-third broader than long, broader behind than in front, sides convex, anterior border straight, angles broadly rounded, dorsum evenly convex in all directions; constriction between postpetiole and gaster wide but not deep. First segment of gaster one-third broader than long, broader behind than in front, sides strongly convex. Pygidium truncate, concave, margined on sides by a sharp ridge, the ridge furnished with numerous short sharp translucent spines. Sting long and stout. Legs long and robust.

Male. Length 7.5-8 mm.

Colour, sculpture and pilosity as on the worker.

Head one-seventh broader than long, almost circular. Mandibles large, triangular, furnished with numerous fine small sharp teeth. Clypeus short, broadly rounded in front. Frontal carinae large and erect, truncate and confluent behind. Eyes placed at middle, occupying one-third of sides. Ocelli large and prominent. Scapes extend backward almost level with posterior margin of eyes; all funicular segments longer than broad. Thorax barely twice as long as broad. Pronotum short, hemispherical, a short broad tubercle-like projection on top at pro-mesonotal suture. Mesonotum one-sixth longer than broad, bluntly rounded in front. Mayrian and parapsidal furrows feebly impressed. Scutellum one-third broader than long, oval. Epinotum twice as broad as long, convex both ways, posterior border sharply margined; in profile vertical, high, convex, sharp pointed and projecting in front above. Mesonotum evenly convex from apex to base. Scutellum dome-shaped, twice as long as high. Epinotum convex longitudinally, one-third longer than declivity. Declivity at an obtuse angle, straight, boundary between declivity and dorsum marked by a strong ridge. Node one-fourth broader than long, very slightly broader behind than in front, anterior border straight sharply margined, angles sharp, sides and posterior border convex, sides submarginate in front to middle; in profile as high as long, dome-shaped, a broad blunt tooth-like projection directed backward in front below. Postpetiole barely one-third broader than long, sides and front strongly convex; constriction between postpetiole and gaster wide but not deep. First segment of gaster almost one-third broader than long, much broader behind than in front, sides strongly convex. Genitalia retracted. Legs long and slender.

Habitat.—*Victoria*: Patho (H. A. Potter).

Neophyracaces gwynethae sp. nov.

Plate XIII, Figs. 6, 7.

Worker. Length 8.5 mm.

Bright ferruginous. Eyes, ocelli, margins of thorax, node and postpetiole dark brown.

Smooth and shining; very finely and densely reticulate; mandibles with a few large shallow punctures, obsolete near base; head, thorax and gaster with small scattered piligerous punctures, very sparse throughout.

Hair yellow, long and erect and abundant on apical segments of gaster, shorter and sparse elsewhere, strong and bristle-like on scapes, very short and adpressed on funiculi and legs. Pubescence nil.

Head as long as broad, sides convex, occipital border short, straight or very feebly convex, angles rounded. Mandibles edentate, edges sharp. Clypeus very short, vertical. Frontal carinae erect, converging slightly, and truncate behind, one-third longer than broad in front. Carinae of cheeks short, prominent in front, obsolete behind, hardly extending beyond frontal carinae behind. Eyes large and convex, placed at middle of sides. Ocelli large and prominent. Scapes extend beyond posterior margin of eyes by barely their thickness; first to fourth segments of funiculus as long as broad, fifth to seventh very slightly broader than long, eighth to tenth as long as broad, apical pointed, as long as the two preceding combined. Thorax barely twice as long as broad, very strongly constricted at mesonotal region. Pronotum almost one-third broader than long, sides and front convex and sharply margined, margins stop abruptly at pro-mesonotal suture. Mesonotum as long as broad, sutures feebly indicated, sides not margined. Epinotum one-third broader than long, sides convex, strongly margined, posterior straight, margined, angles sharp; in profile dorsum convex longitudinally, anterior border of pronotum short and truncate, epinotal declivity at an obtuse angle, half as long as dorsum from which it is separated by a sharp ridge, sides not margined. Node slightly broader than long, one-fifth broader behind than in front, sides convex and sharply margined, anterior border concave, the angles sharply produced in front, posterior angles produced backward and slightly inward at points, as long as broad at base; in profile one-fifth longer than high, anterior face vertical, sharply margined, dorsum feebly convex, anterior edge sharp, not produced, posterior greatly produced backward, sharply pointed, twice as long as broad at base. Postpetiole one-third broader than long, much broader behind than in front, sides convex, anterior border straight, sharply margined, the angles sharp, the margins extend along the anterior third of sides. First segment of gaster one-third broader than long, broader behind than in front, sides convex. Legs long and robust.

Male. Length 7.2 mm.

Colour lighter than in worker, back of head and a large Y shaped patch on mesonotum yellow. Wings translucent, veins brown.

Sculpture and pilosity as in the worker.

Head fully one-fourth broader than long, broadly arched from the eyes behind. Mandibles large, feebly dentate. Frontal carinae erect, parallel, diverging slightly outward behind limiting the antennal fovea. Eyes very large occupying almost all the sides. Ocelli large and convex. Scapes extend back level with the middle of the eyes; second segment of funiculus twice as long as first, remainder longer than broad, apical sharp pointed, longer than the two preceding combined. Thorax almost twice as long as broad. Pronotum hardly seen from above, strongly convex in all directions. Mesonotum very slightly broader than long, parapsidal furrows strongly impressed, mayrian furrows feebly impressed. Scutellum one and one-half times broader than long, oval. Epinotum almost twice as broad as long, posterior border straight; in profile pronotum vertical, mesonotum strongly convex in front, feebly convex at middle, scutellum twice as long as high, convex, epinotum straight, highest in front, declivity feebly concave, slightly shorter than dorsum from

which it is separated by a sharp ridge. Node one and three-quarters times broader than long, oval; in profile almost twice as long as high, hemispherical. Postpetiole one-fifth broader than long, broadest behind, sides convex, anterior edge straight, angles rounded; constriction between postpetiole and first segment of gaster deep and wide. First segment of gaster one-third broader than long, broadest behind, sides strongly convex. Genitalia retracted; legs long and slender.

Habitat.—*Victoria*: Red Cliffs (Miss G. Claringbull).

In size and colour somewhat similar to *N. potteri* but separated by the shape of the head and nodes.

Neophyracaces macrops sp. nov.

Plate XIII, Fig. 8.

Worker. Length 6 mm.

Bright ferruginous throughout; eyes, ocelli and margins of thorax and node black.

Smooth and shining, microscopically reticulate throughout, with numerous shallow scattered piligerous punctures.

Hair yellow, erect, long and rather abundant, shorter on antennae and legs.

Head one-ninth longer than broad, almost as broad in front as behind, sides and occipital border feebly convex, angles rounded. Mandibles large, furnished with numerous very small sharp teeth. Frontal carinae erect, converging gradually behind, one-third longer than broad in front. Carinae of cheeks short and sharp, extend backward level with frontal carinae. Eyes large, rather flatly convex, placed at middle of sides. Ocelli large and convex. Scapes short, not extending to the posterior margin of eyes by fully their thickness; first segment of funiculus longer than broad, second to eighth broader than long, apical bluntly pointed, longer than the two preceding combined. Thorax twice as long as broad, feebly constricted at mesonotal region, pro-mesonotal and meso-epinotal sutures indistinct. Pronotum one-fourth broader than long, sides and front convex, angles bluntly rounded. Mesonotum one-third broader than long, sides straight. Epinotum one-third broader than long, sides strongly convex, posterior border straight or feebly convex, angles sharp, all edges of thorax sharply margined; in profile evenly convex from apex to base, pronotum truncate in front, epinotal declivity feebly concave, sides margined, separated from dorsum by a sharp ridge. Node one-fifth broader than long, sides convex, sharply margined, anterior border concave, angles sharp, posterior border convex, the angles produced backward and curved inward as broad flat spines half as long as broad at base; in profile anterior face straight, sharply margined on sides, superior angle sharp, dorsum convex, highest behind middle, margin sharp, ending behind in a slender spine directed backward and slightly upward. Postpetiole one-fifth broader than long, broadest behind, sides and front feebly convex, angles bluntly rounded; constriction between postpetiole and first segment of gaster deep and wide. First segment of gaster one-third broader than long, strongly convex. Legs long and robust.

Habitat.—*Victoria*: Patho (H. A. Potter).

A small colony was found whilst they were robbing a nest of *Iridomyrmex rufoniger* Lowne.

Neophyracaces piliventris sp. nov.

Plate XIII, Fig. 9.

Worker. Length 8·8·5 mm.

Yellowish-red, margins of thorax and node black.

Shining. Mandibles with some large shallow punctures. Head, thorax, node and gaster very finely and densely reticulate, with large shallow piligerous punctures, more abundant on gaster.

Hair yellow, long and erect, particularly abundant on gaster, shorter and suberect on antennae and legs. Pubescence whitish, apparent only on antennae and legs.

Head as long as broad across the eyes, occipital border evenly arched from eye to eye, sides in front of eyes straight. Mandibles large, edentate. Frontal carinae erect, high, parallel, truncate behind, twice as long as broad. Carinae of cheeks prominent, front angles sharp and raised. Scapes extend beyond hind margin of eyes by half their thickness; first to tenth segments of funiculus slightly broader than long, apical pointed, twice as long as broad and as long as the two preceding combined. Eyes large and convex, their centre slightly behind the middle of the sides. Ocelli large and prominent. Thorax one and three-quarters times longer than broad, slightly broader at epinotum than pronotum, sutures distinct, strongly constricted at mesonotal region. Pronotum twice as broad as long, front and sides strongly convex, sides margined. The margins continued and almost meeting in front. Mesonotum one-fourth broader than long, convex in front and behind, concave on sides, not margined, one-fifth narrower than pronotum. Epinotum twice as broad as long, sides strongly convex and margined, posterior border straight or feebly convex, margined, angles sharp; in profile evenly convex longitudinally, sutures indicated but feebly impressed, declivity concave, sides margined. Node one-fifth broader than long, broadest behind, sides convex to anterior fourth, sharply margined, anterior edges convex, not margined, angles sharp, posterior angles produced as long sharp translucent spines twice as long as broad at base, curved slightly inward; in profile anterior face short and straight, broadly rounded into dorsum, margined on sides, dorsum convex, highest in front, posterior angles produced backwards as broad sharp spines as long as broad at base, declivity short, rounded into dorsum. Postpetiole almost one-third broader than long, broadest behind, sides strongly convex, anterior edge straight, margined, the angles sharp, constriction between postpetiole and gaster deep and wide. First segment of gaster one-sixth broader than long, sides convex. Legs long and slender.

Male and female unknown.

Habitat.—*Queensland*: Brisbane (H. Hacker).

Subfamily **Ponerinae** Lepeletier.

Hist. Nat. Ins. Hymn., i, p. 185, 1836.

Genus **RHYTIDOPONERA** Mayr.

Verh. Zool. bot. Ges., Wien, xii, p. 731, 1862.

Since the revision of this genus, these *Memoirs*, viii, 1936, the following species have been received:—

Rhytidoponera barretti sp. nov.

Plate XIII, Fig. 10.

Worker. Length 10·5-11 mm.

Black; mandibles, apical half of funiculus and all the tarsi reddish brown.

Mandibles strongly and evenly striate longitudinally. Head longitudinally striate-rugose, the rugae diverging strongly outward behind. Clypeus longitudinally striate. Scapes very finely striate longitudinally. Pronotum and mesonotum coarsely and irregularly rugose, spaces between rugae shining. Epinotum coarsely rugose transversely, some very fine transverse striae in front. Node more irregularly but finely rugose. Postpetiole finely and densely striate, the striae longitudinally arched. First segment of gaster finely and densely striate longitudinally, remainder of segments densely reticulate.

Hair yellow, short and erect, abundant throughout, very short and suberect on scapes and legs. Pubescence yellow, apparent only on funiculus.

Head one-sixth longer than broad, sides straight, almost parallel, occipital border very feebly concave, the angles broadly rounded. Mandibles broad, furnished with numerous very small sharp teeth. Clypeus convex in all directions. Frontal area small, triangular. Frontal carinae as long as broad in front. Scapes extend beyond occipital border by fully one-third of their length; second segment of funiculus one-third longer than first, third slightly shorter than second, remainder subequal, apical one-third longer than the preceding. Eyes small, globular, placed behind the middle of sides. Thorax one and three-quarters times longer than broad. Pronotum fully one-third broader than long, slightly compressed on sides, convex in front and above; pro-mesonotal suture sharply impressed. Mesonotum one-fourth broader than long, convex in all directions, meso-epinotal suture indistinct. Epinotum as long as broad; in profile pronotum raised at an obtuse angle, flattened to basal fourth, then convex to base, there is a deep impression on sides, suture sharply defined. Mesonotum convex. Meso-epinotal suture indicated but not impressed. Epinotum evenly convex from base to foot of declivity. Node twice as broad as long, oval, convex transversely; in profile twice as high as long, anterior and posterior faces straight and parallel, dorsum convex, ventral spine twice as long as broad at base, abruptly reduced and pointed in front. Postpetiole almost one-third broader than long, sides and front strongly convex; constriction deep and sharp. First segment of gaster one-seventh broader than long, broadest in front, sides convex. Legs long and robust.

Habitat.—*Central Australia*: Harts Range (C. L. Barrett, July 1938).

Near *R. maniae* Forel but larger and more robust.

Rhytidoponera greavesi sp. nov.

Plate XIII, Fig. 11.

Worker. Length 11-12 mm.

Bright ferruginous throughout. Mandibles and legs lighter.

Mandibles very finely, superficially striate longitudinally with numerous large shallow punctures. Clypeus coarsely striate longitudinally. Head coarsely striate, transverse on the posterior third, longitudinal between frontal carinae then circling round the antennal fovea. Scapes very finely and densely striate longitudinally. Thorax transversely and coarsely striate. Node circularly striate. Legs smooth and shining, finely punctate, anterior coxae transversely striate.

Hair yellow, short and erect, abundant throughout not shorter on antennae and legs. No pubescence.

Head one-seventh longer than broad, broader in front than behind, sides convex, occipital border convex with a slight depression in the middle, angles sharp, projecting slightly laterally, a small sharp crest extends from angle to angle in front. Mandibles very finely denticulate. Clypeus convex above and in front. Frontal area large. Frontal carinae as long as broad in front. Scapes extend beyond occipital border by fully one-third their length; first and third segments of funiculus equal in length, one-seventh shorter than second, apical as long as the two preceding combined. Eyes globular placed behind the middle of the sides. Thorax twice as long as broad, pro-mesonotal suture sharply impressed, meso-epinotal suture feebly indicated. Pronotum twice as broad as long, convex in all directions, sides slightly compressed. Mesonotum one-fifth broader than long, broadest in front, convex. Epinotum as long as broad, convex laterally; in profile pronotum raised gradually convex to basal fourth then abruptly convex to base, a deep indentation in middle of sides. Mesonotum evenly convex, as long as dorsum of epinotum but higher. Epinotum straight, curved into the short declivity behind. Node barely twice as broad as long, oval, dorsum convex transversely; in profile twice as high as long, anterior and posterior faces parallel, dorsum convex, the ventral spine long, slender and sharp. Postpetiole barely one-third broader than long, strongly convex in front, constriction deep and wide. First segment of gaster slightly broader than long, broadest in front, convex. Legs long and robust.

Male. Unknown.

Habitat.—*North Queensland*: Julia Creek (T. Greaves).

Near *R. socrus* Forel, from which it is distinguished by the colour, shape and sculpture of thorax and node.

Rhytidoponera rufithorax sp. nov.

Plate XIII, Fig. 12.

Worker. Length 7.5-8.5 mm.

Mandibles, head, thorax and node red, gaster black, scapes and legs brown, funiculi and tarsi yellowish brown.

Mandibles and scapes very finely and densely striate longitudinally. Head coarsely punctate-rugose, the rugae fine, punctures broad and shallow, shining at the bottom, spaces between finely reticulate. Thorax very finely and densely reticulate, with widely spaced, large, shallow punctures shining at the bottom. Epinotal declivity more transversely rugose. Node more finely punctate-rugose. Postpetiole very finely densely striate transversely arched. First segment of gaster more finely striate transversely. Legs very finely striate transversely, the striae in some examples obsolete.

Hair yellow, short and erect, sparse throughout, more abundant but shorter and finer on antennae and legs. Pubescence whitish, confined to funiculi.

Head fully one-fifth longer than broad, sides feebly convex, occipital border convex, with a short concave depression in the middle, angles rounded, a sharp crest limits the border and angles. Mandibles edentate, cutting edge sharp. Clypeus convex in all directions. Frontal area large, triangular. Frontal carinae as long as broad in front. Scapes extend beyond occipital border by more than one-third of their length; first four segments of

funiculus equal in length, apical as long as the two preceding combined. Eyes globular, placed behind the middle of sides. Thorax twice as long as broad, pro-mesonotal suture sharply impressed, meso-epinotal suture indicated. Pronotum one-fourth broader than long, convex in all directions, a slight depression on sides. Mesonotum one-fourth broader than long, convex in all directions. Epinotum barely as long as broad, convex laterally; in profile pronotum raised and convex from apex to base, pro-mesonotal suture deep and sharp. Mesonotum flatly convex, meso-epinotal suture faintly impressed. Epinotum feebly convex, almost straight from base to front of declivity. Node barely twice as broad as long, oval, convex transversely; in profile twice as high as long, anterior and posterior faces vertical, parallel, dorsum flatly convex, edges sharply rounded; ventral spine short, slender and sharp. Postpetiole almost one-fourth broader than long, cone-shaped in front, constriction wide but shallow. First segment of gaster almost as long as broad, broadest in front. Legs long, rather slender.

Habitat.—*Northern Territory*: Alexandria station (T. Greaves).

Genus CHALCOPONERA Emery.

Ann. Mus. Stor. Nat., Genova, xxxviii, p. 548, 1897.

Chalcoponera viridis sp. nov.

Plate XIII, Fig. 13.

Worker. Length 6.5-7 mm.

Head, thorax and gaster bright metallic green; mandibles, antennae and legs brown.

Mandibles very finely striate-rugose longitudinally. Head longitudinally rugose on the middle, irregularly punctate-rugose on sides and behind. Scapes finely and densely striate-reticulate. Thorax and node coarsely punctate-rugose, the punctures large and deep, finely and densely reticulate at the bottom. Postpetiole transversely arched striate and with numerous large shallow punctures, more abundant in front than behind. First segment of gaster very finely and densely striate-reticulate circularly, almost transverse in front. Legs finely reticulate.

Hair yellow, long and erect, abundant throughout, shorter and suberect on antennae and legs. Pubescence apparent only on antennae.

Head very slightly longer than broad, sides convex, occipital border concave, angles rounded. Mandibles furnished with numerous small sharp teeth. Clypeus convex above, produced and straight or feebly concave in front. Frontal area small, triangular. Frontal carinae as long as broad behind. Scapes extend beyond occipital border by twice their thickness; first and second segments of funiculus equal length, one-fifth longer than third, apical as long as the two preceding combined. Eyes large, globular, placed behind the middle of sides. Thorax one-third longer than broad, pro-mesonotal suture sharply defined, meso-epinotal suture faintly indicated. Pronotum twice as broad as long, sides and front strongly convex, concave behind, dorsum flatly convex. Mesonotum fully one-fourth broader than long, convex in all directions. Epinotum as long as broad, convex laterally; in profile pronotum raised abruptly, convex, dorsum of pronotum, mesonotum and epinotum evenly convex to foot of declivity, sutures feebly impressed.

Node one-third broader than long, twice as broad behind as in front, sides convex, angles rounded, posterior face straight; in profile much higher than long, anterior and posterior faces straight and parallel, dorsum convex, dorsum slightly longer than posterior face, ventral spine very long and slender, almost four times longer than broad at base. Postpetiole two-fifths broader than long, strongly convex in front, sides straight, constriction deep and wide. First segment of gaster one-seventh broader than long, convex behind. Legs long and slender.

Male and female unknown.

Habitat.—*South Australia*: Kalmurina, Lake Eyre (Prof. J. W. Gregory 17.8.03).

Distinguished from all the other species by the colour, shape of thorax, node and the very long ventral spine.

Chalcoponera flavipes sp. nov.

Plate XIII, Fig. 14.

Worker. Length 4.5-5 mm.

Head, thorax, node and first two segments of gaster green. Mandibles, clypeus, antennae and legs reddish yellow, apex of gaster brownish.

Mandibles superficially striate-reticulate in the middle almost smooth near the edges. Clypeus longitudinally, head irregularly punctate-rugose, the punctures deep and densely and finely punctate-reticulate at the bottom. Scapes finely reticulate. Thorax and node coarsely punctate-rugose, more coarsely than on head, punctures wider and deeper, similarly reticulate at the bottom. Postpetiole very delicately striate transversely, with some shallow obsolete punctures. First segment of gaster even more delicately striate transversely. Legs shining.

Hair yellow, short and erect on head, thorax and node, longer on clypeus and gaster, short and suberect on antennae and legs. Pubescence nil.

Head barely one-seventh longer than broad, sides convex, occipital border straight or feebly convex, with a small but distinct crest in front, angles rounded. Mandibles furnished with three or four small sharp teeth on apical half, finely denticulate behind. Clypeus broadly convex above and in front. Frontal area small. Frontal carinae as long as broad in front. Scapes extend beyond occipital border by twice their thickness; first segment of funiculus one-fifth longer than second, apical twice as long as the two preceding combined. Eyes globular, placed behind the middle sides. Thorax fully one-third broader than long, pro-mesonotal suture sharply impressed, meso-epinotal suture faintly indicated. Pronotum one and three-quarters times broader than long, front and sides strongly convex, dorsum convex all ways. Mesonotum one and three-fifths times broader than long, convex in all directions. Epinotum almost twice as broad as long, convex laterally; in profile pronotum raised high and convex from apex to base, mesonotum flatly convex, dorsum of epinotum short and straight, one-fifth shorter than declivity face, declivity straight sloping at an obtuse angle. Node one-third broader than long, front and sides strongly convex, weakly convex behind, dorsum convex laterally; in profile one-third higher than long, one-fifth longer below than on top, anterior face straight sloping backward, posterior face vertical, dorsum feebly convex, as long as posterior face, ventral spine short, sharp and curved backward, placed at the anterior edge of a broad

plate-like process with a transparent puncture behind. Postpetiole one-sixth broader than long, sides and front convex. First segment of gaster very slightly broader than long, sides convex. Legs long and slender.

Male and female unknown.

Habitat.—*South Australia*: Ooldea (J. A. Kershaw, July 1921).

The colour and shape of the thorax separate this from all other known forms.

Chalcoponera hilli sp. nov.

Plate XIII, Fig. 15.

Worker. Length 5.5-6 mm.

Head, thorax, node and gaster brown, mandibles, antennae and legs reddish brown.

Mandibles finely striate longitudinally. Clypeus longitudinally rugose, with some shallow scattered punctures. Head longitudinally punctate-rugose, the rugae diverging outward behind. Scapes finely and densely striate longitudinally. Pronotum and mesonotum coarsely punctate-rugose, the punctures large and deep, shining at the bottom. Epinotum transversely rugose, the punctures small. Node irregularly punctate-rugose, almost as on epinotum. Postpetiole strongly striate transversely, the striate arched at posterior fourth, with some scattered obsolete punctures. First segment of gaster more finely and densely striate transversely.

Hair yellow, long and erect, abundant throughout, shorter and suberect on antennae and legs. No pubescence.

Head one-fifth longer than broad, sides convex, occipital border straight, angles sharply rounded, a feeble crest extends along the border. Mandibles large and broad, furnished with numerous small sharp teeth. Clypeus broadly convex above and in front. Frontal area large and triangular. Frontal carinae as long as broad in front. Scapes extend beyond occipital border by barely twice their thickness; first to tenth segments of funiculus equal in length, gradually increasing in thickness, apical as long as the two preceding combined. Eyes small, globular, placed at middle of sides. Thorax one and one-half times longer than broad, pro-mesonotal suture sharply impressed, mesoepinotal suture feebly indicated. Pronotum fully one-third broader than long, sides and front convex, very feebly convex transversely. Mesonotum three-fifths broader than long, convex in all directions. Epinotum almost twice as broad as long, strongly convex transversely; in profile pronotum raised abruptly, strongly convex to base. Mesonotum flatly convex, both sutures distinct. Epinotum one-third longer than declivity, feebly convex, declivity straight rounded into dorsum. Node almost one-third broader than long, sides and front strongly convex, feebly convex behind; in profile higher than long, anterior and posterior faces vertical, straight and parallel, dorsum slightly longer than posterior face, feebly convex, angles sharply rounded. Ventral process large and plate-like, one-third longer than broad, with a large transparent puncture in centre and a long sharp spine in front directed backward. Postpetiole one-third broader than long, strongly convex in front, weakly convex on sides, constriction deep and wide. First segment of gaster as long as broad, strong convex behind. Legs robust.

Male and female unknown.

Habitat.—*North Queensland*: Palm Island (G. F. Hill).

Chalcoponera pulchra sp. nov.

Plate XIII, Fig. 16.

Worker. Length 4.5-5.5 mm.

Head bright metallic violet, thorax and node bright metallic coppery violet, postpetiole and gaster bright metallic bluish violet. Mandibles, funiculi and tarsi reddish brown, scapes and legs blackish brown.

Mandibles very finely striate longitudinally, with large shallow punctures on disc. Clypeus longitudinally rugose. Head longitudinally punctate-rugose, the rugae diverging outward behind. Scapes finely striate longitudinally. Pronotum and mesonotum coarsely punctate-rugose, the punctures large and shallow, shining at the bottom; epinotum more transversely punctate-rugose. Postpetiole finely and densely striate, transversely arched, with some scattered obsolete punctures. First segment of gaster more delicately striate transversely.

Hair yellow, long and erect but not abundant, shorter, finer and suberect on antennae and legs. Pubescence nil.

Head a fraction longer than broad, sides convex, occipital border straight, crest sharp, slightly raised, angles sharply rounded. Mandibles furnished with large sharp teeth. Clypeus broadly convex above and in front. Frontal area small, triangular. Frontal carinae almost twice as long as broad in front, parallel, raised; head slightly depressed on outer sides of carinae. Scapes extend beyond occipital border by barely their thickness; first segment of funiculus one-third longer than second, remainder gradually increasing in thickness, apical as long as the two preceding combined. Eyes small and globular, placed at middle of sides. Thorax one and one-third times longer than broad, pro-mesonotal suture sharply impressed, meso-epinotal suture faintly indicated. Pronotum almost twice as broad as long, sides and front strongly convex, dorsum flatly convex. Mesonotum one-third broader than long, oval, convex transversely. Epinotum one-fourth broader than long, convex transversely; in profile strongly and evenly convex from apex of pronotum to apex of epinotal declivity, pro-mesonotal suture sharply impressed, meso-epinotal suture indicated. Node one and one-half times broader than long, broadest behind, convex in front, straight behind; in profile higher than long, anterior face vertical, convex and rounded into dorsum, posterior face vertical and straight, shorter than dorsum, top edge steep, ventral process one-third longer than broad, with a shallow puncture near the anterior edge, a long sharp spine in front directed very slightly forward. Postpetiole almost one-third broader than long, convex in front and on sides, constriction deep and wide. First segment of gaster slightly broader than long, convex behind. Legs slender.

Male and female unknown.

Habitat.—*Western Australia*: Forrest (C. L. Barrett, April, 1930).

The colour, shape of the thorax and node separate this from all the known species.

Chalcoponera brunnea sp. nov.

Plate XIII, Fig. 17.

Worker. Length 4.4-5 mm.

Head, thorax and node chocolate brown, gaster darker, mandibles yellow. Mandibles very finely striate longitudinally. Clypeus coarsely rugose.

longitudinally. Head longitudinally rugose in front, diverging outward and more punctate-rugose behind. Scapes very finely and densely striate longitudinally. Thorax coarsely and irregularly punctate-rugose, the punctures large and deep, shining at the bottom. Node more finely punctate. Postpetiole very finely and densely reticulate-striate, the indistinct striae transversely arched. First segment of gaster very finely and densely striate transversely, the striate almost obsolete behind.

Hair yellow, short and erect throughout, shorter and suberect on antennae and legs. Pubescence nil.

Head very slightly longer than broad, sides convex, occipital border concave, with traces of a crest, angles sharply rounded. Mandibles furnished with small sharp teeth. Clypeus broadly convex above and in front. Frontal area large, triangular. Frontal carinae almost one-third longer than broad in front. Scapes extend beyond occipital border by their thickness; first segment of funiculus almost twice as long as second, apical as long as the two preceding combined. Eyes small, globular, their anterior border placed at middle of sides. Thorax almost one-third longer than broad, pro-mesonotal suture faintly impressed, meso-epinotal suture not indicated. Pronotum one and three-fifths broader than long, sides and front strongly convex, dorsum convex transversely. Mesonotum one-third broader than long, convex in all directions. Epinotum almost twice as broad as long, convex transversely; in profile pronotum abruptly raised convex, then evenly convex to top of epinotal declivity; dorsum of epinotum as long as declivity into which it is rounded. Node twice as broad as long, sides and front hemispherical, straight behind; in profile higher than long, anterior face vertical, slightly convex, posterior face vertical slightly concave, dorsum convex, as long as posterior face, both edges rounded; ventral process large, as long as broad, a large transparent puncture in the middle at base, the process is furnished with two large sharp spines, one in front directed downward, the other at the posterior corner and directed backward. Postpetiole one-third broader than long, sides and front feebly convex, angle rounded; constriction wide and shallow. First segment of gaster broader than long. Legs robust.

Male and female unknown.

Habitat.—*Northern Territory*: Koolpinyah (C. L. Barrett, 1933).

Not near any of the previously described species, but the size and colour are similar to those of *C. tasmaniensis* Em.

Subfamily *Dolichoderinae* Forel.

Zeitschr. Wiss. Zool., xxx, Suppl., p. 54, 1878.

Genus *IRIDOMYRMEX* Mayr.

Verh. Zool. bot. Ges. Wien, xii, p. 702, 1862.

Iridomyrmex viridigaster sp. nov.

Plate XIII, Fig. 18.

Worker. Length 4.5 mm.

Posterior two-thirds of head, epinotum, node and legs brown; mandibles,

clypeus, antennal fovea, antennae and tarsi yellowish, pronotum red, mesonotum reddish brown, gaster green.

Mandibles with large, shallow, elongate punctures; head smooth and shining, clypeus, frontal carinae, thorax, node and gaster microscopically reticulate.

Hair yellow, erect, short and sparse throughout, pubescence very fine and adpressed, abundant throughout, particularly on the gaster where it forms a fine yellowish covering.

Head as long as broad, occipital border short and straight, sides strongly convex. Mandibles furnished with numerous strong sharp teeth. Clypeus convex both ways, anterior border straight or feebly concave, the angles rounded, the posterior edge rounded and continued backward between the frontal carinae, very slightly depressed at the middle. Frontal carinae short and parallel, as long as broad, a sharp longitudinal carina in the centre. Scapes not extending to occipital border by fully their thickness; first segment of funiculus three times longer than second, remainder sub-equal, apical as long as the two preceding combined. Eyes large, flatly convex, placed at middle of sides. Thorax twice as long as broad through pronotum, sutures well defined. Pronotum one-third broader than long, strongly convex in all directions. Mesonotum as long as broad, pear-shaped, broadest in front, constriction between mesonotum and epinotum deep and wide with the spiracles prominent on top at each side. Epinotum as long as broad, strongly convex laterally, sides almost parallel; in profile pronotum and mesonotum united, hemispherical, suture faintly indicated, meso-epinotal suture sharp and deep. Epinotum convex above, declivity concave below, strongly rounded into dorsum above, as long as dorsum, spiracles prominent. Node scale-like, four times broader than long, sides convex, straight in front and behind; in profile twice as high as long, parallel to near top, anterior face straight, top edge sharp, posterior face rounded into dorsum above. Gaster slightly longer than broad, first segment one and three-quarters times broader than long and three times broader behind than in front, truncate in front with a small cavity which fits the node, anterior face short and straight, sides convex, legs long and slender.

Male and female unknown.

Habitat.—*Victoria*: Patho (H. A. Potter).

In size and colour this species is intermediate between *I. rufoniger* Lowne and *I. viridaeneus* Viehmeyer.

Subfamily Formicinae Lepeletier.

Hist. Nat. Ins., Hymn., i, p. 197, 1836.

Genus MELOPHORUS Lubbock.

Jour. Linn. Soc. Lond., Zool., xvii, p. 51, 1883.

Melophorus fulvihirtus sp. nov.

Plate XIII, Figs. 19-21.

Worker major. Length 5.7 mm.

Reddish yellow. Head, mandibles and antennae castaneous. Mandibles shining, coarsely striate longitudinally. Head, thorax and node very finely

and densely reticulate, with numerous very small, shallow piligerous punctures. Gaster and legs shining, more superficially reticulate and the fine punctures more abundant.

Hair yellow, erect, very short and abundant throughout. A row of very long erect yellow hairs on anterior edge of clypeus and a tuft of somewhat shorter hairs at apex of gaster.

Head one-fourth broader than long, broader behind than in front, occipital border slightly concave in middle, angles broadly rounded, sides convex. Mandibles large and broad, furnished with five or six large sharp teeth. Clypeus strongly convex in middle, concave at sides near antennal fovea, projecting and convex in front. Frontal area small and triangular. Frontal carinae one-third broader than long, rather flat, parallel; antennal insertions exposed in front; a shallow median groove extends to anterior ocellus, there is a small polished ocellus-like tubercle midway along the groove. Scapes extend backwards to the occipital border; first and second segments of funiculus equal in length, third to tenth shorter and subequal, apical as long as the two preceding combined. Eyes circular, feebly convex, their anterior edge at middle of sides. Ocelli very small. Thorax one-third longer than broad. Pronotum twice as broad as long, strongly convex in all directions, pro-mesonotal suture sharp and deep. Mesonotum slightly broader than long, sides and posterior border convex, with a triangular excision at middle of posterior border, dorsum weakly convex both ways, a broad blunt tubercle at the posterior third on each side; constriction between mesonotum and epinotum deep. Epinotum four times broader than long, the posterior angles produced as broad blunt tubercles; in profile pronotum convex and dipping in front, pro-mesonotal suture sharply defined. Mesonotum convex, higher than pronotum, posterior angles raised. Epinotum much lower than mesonotum, declivity straight, at an obtuse angle, fully three times longer than dorsum. Node four times broader than long, scale-like, anterior face convex, posterior face straight or feebly convex, superior edge blunt, deeply concave in middle; in profile three times higher than long, anterior and posterior faces convex, bluntly pointed above. Gaster as broad as long; first segment three times broader than long, strongly convex in front. Legs robust.

Worker media. Length 5 mm.

Colour, sculpture and pilosity similar to the worker major, from which it differs only in being smaller and more slender and the antennae slightly longer. Node feebly concave on top.

Worker minor. Length 3.7 mm.

Colour and sculpture as in the major, but mandibles not coarsely striate. Pilosity coarser and more abundant, very short and erect, bristle-like, shorter and suberect on scapes, none on funiculus.

Head one-fourth broader than long, occipital border straight, angles rounded, sides convex. Mandibles, clypeus, frontal area and frontal carinae as in major worker. Scapes extend beyond the occipital border by more than half their length, all segments of funiculus equal in length but apical slightly longer. Ocelli minute. Thorax similar but tubercles on mesonotum and epinotum feebly indicated. Node more slender. Gaster longer and narrower.

Male and female unknown.

Habitat.—*Victoria*: Patho (H. A. Potter).

A very distinct species readily distinguished by the angular thorax. This ant was observed, by Mr. Potter, to carry larvae and pupae from the nest of *Iridomyrmex detectus* Smith.

Genus CAMPONOTUS Mayr.

Europ. Formic., p. 35, 1861.

Subgenus TANAEMYRMEX Ashmead.

Canad. Entom., p. 384, 1905.

Camponotus (Tanaemyrmex) tricoloratus sp. nov.

Plate XIII, Figs. 22, 23.

Worker major. Length 15.5-17mm.

Head and last four segments of gaster brown; cheeks, antennae, first segment of gaster and tarsi reddish brown, head with a broad black longitudinal strip behind; sides of the clypeus and frontal carinae black; thorax, node and legs yellow, pronotum darker.

Mandibles densely punctate-reticulate, with numerous large shallow piligerous punctures, obliquely striate at base of teeth. Head very finely and densely reticulate-punctate, the punctures small and obsolete. Thorax, node and gaster shining, very finely reticulate.

Hair reddish, long and erect, sparse throughout, there is a row of very long hairs at the base and at the apex of each segment of gaster, extra long at apex of gaster, shorter and stouter on legs, bristle-like on under-sides of tibiae and tarsi, none on antennae. Pubescence very fine and adpressed. Very sparse throughout.

Head almost as broad as long, anterior fourth of sides convex, straight and parallel behind, occipital border concave, angles rounded. Mandibles broad, convex above, furnished with numerous strong teeth. Clypeus slightly broader than long, dorsum flatly convex, anterior border strongly produced, straight in front, strongly crenulate, with seven or eight broad tubercles. Frontal area small. Frontal carinae one-fifth longer than broad in the middle, broader behind than in front. Scapes extend beyond the occipital border by their thickness; first three segments of funiculus equal in length, two and one-half times longer than broad. Eyes small, flatly convex, placed on front of head behind the middle. Ocelli small. Thorax twice as long as broad, sutures sharply impressed. Pronotum two and one-fourth times broader than long, strongly convex. Mesonotum one-seventh broader than long, broadest in front, strongly convex transversely. Mesonotum two and one-half times broader than long, oval. Epinotum one-third longer than broad, convex laterally; in profile pronotum and mesonotum strongly and evenly convex, suture sharply impressed, epinotum concave in the middle of dorsum, three-fifths longer than the declivity into which it is rounded. Node three and one-half times broader than long, strongly convex in front, straight behind; in profile higher than long, almost triangular, anterior face convex, erect, posterior face straight, raised and ascending at an obtuse angle, the top sharp. Gaster one-third longer than broad. Legs long and robust.

Worker minor. Length 12.5-14 mm.

Head black; mandibles, clypeus and antennae reddish brown; thorax, gaster and tarsi brownish yellow, legs yellow.

Sculpture and pilosity as in the worker major.

Head one-third longer than broad, three times broader in front than

behind, produced backward neck-line, sides feebly convex. Mandibles as in the major, but the teeth strong. Clypeus strongly raised longitudinally in the middle, subcarinate, the denticles on anterior border smaller and more obsolete. Frontal carinae narrower, particularly in front. Scapes extend beyond the occipital border by half their length; third and fourth segments of funiculus one-fourth longer than first and second. Eyes large, globular, placed behind the middle of sides. Thorax three times as long as broad, sutures sharply impressed. Pronotum as long as broad, cone-shaped, broadest behind. Mesonotum as long as broad in front, twice as broad in front as behind. Mesonotum one-fourth broader than long, oval. Epinotum one-third longer than broad; in profile dorsum similar to that of the major but the epinotum longer and the declivity shorter, dorsum twice as long as declivity. Node one-fifth longer than broad, oblong, sides straight and parallel, anterior and posterior faces slightly convex, angles rounded; in profile as long as high, almost triangular, anterior faces convex directed backward, posterior face feebly convex directed forward, top sharp pointed. Gaster barely twice as long as broad. Legs long and slender.

Male and female unknown.

Habitat.—*Victoria*: Near Mildura (Mrs. M. J. Zimmer).

Near *C. (T.) spinatarsus* Emery, but is distinguished by the shape of the thorax and node.

Genus POLYRHACHIS Smith.

Journ. Linn. Soc. Lond., Zool., ii, p. 58, 1857.

Subgenus MYRMHOPLA Forel.

Arkiv. f. Zool., ix, p. 107, 1915.

Polyrhachis (Myrmhopla) exulans sp. nov.

Plate XIII, Fig. 24.

Worker. Length 5.5-6 mm.

Black throughout, legs somewhat brownish black.

Mandibles shining, with scattered piligerous punctures. Head, thorax and node finely and very densely reticulate; scapes, legs and gaster more finely and superficially reticulate.

Hair yellow, erect, confined to clypeus and apical segments of gaster. Pubescence white, very fine and adpressed, abundant throughout, longer and more abundant on gaster forming a distinct covering almost hiding the sculpture.

Head as long as broad, almost circular. Mandibles furnished with large sharp teeth. Clypeus twice as broad as long, broadly convex, produced convex in front with a broad triangular depression in the middle. Frontal area triangular. Frontal carinae almost twice as long as broad, as broad in front as behind, concave in the middle. Scapes extend beyond occipital border by fully half their length; first segment of funiculus one-seventh longer than the three following. Eyes placed behind middle of sides. Thorax one and three-fifths times longer than broad, pro-mesonotal suture

sharply impressed. Pronotum, on dorsum, very slightly broader than long, sides straight, sharply rounded but not margined, convex in front, each anterior angle furnished with a long sharp spine, twice as long as broad at base, directed outward and slightly forward and upward. Mesonotum slightly broader than long, convex in all directions. Epinotum broader than long, convex laterally, posterior angles each furnished with a long slender sharp spine, three times as long as broad at base, their distance apart at base equal to half their length; in profile slightly and abruptly raised convex in front, straight and sloping behind in middle, basal fourth convex, anterior spines directed forward. Mesonotum convex. Epinotum straight, slightly shorter than the declivity, posterior spines slender directed upward and backward, declivity straight. Node twice as broad as long, each angle furnished with a long sharp spine encompassing the gaster, fully three times longer than broad at base, curved outward and backward; in profile higher than long, twice as broad at base as on top, anterior face vertical and straight, posterior face convex directed forward and upward. Gaster slightly longer than broad. Legs long and slender.

Male and female unknown.

Habitat.—Northern Territory: Koolpinyah (C. L. Barrett, 1933).

Smaller and more slender than *P. (M.) clotho* Florel, the sculpture and pilosity also are different.

Subgenus *CAMPOMYRMA* Wheeler.

Science, xxxiii, p. 360, 1911.

Polyrhachis (Campomyrma) zimmerae sp. nov.

Plate XIII, Fig. 25.

Worker. Length 11-12 mm.

Black; mandibles, clypeus, funiculi and legs reddish brown.

Head, thorax and node finely and densely reticulate, gaster more finely and densely reticulate.

Hair yellow, long and erect on mandibles, clypeus and apex of gaster, none elsewhere on body, short and suberect on antennae and legs. Pubescence nil.

Head one-ninth longer than broad, sides and occipital border feebly convex, angles rounded, lateral border sharp from margin of eyes to occipital border. Mandibles furnished with four or five strong sharp teeth. Clypeus large, one-third of length of head, anterior border broadly produced, furnished with numerous short, sharp teeth-like spines in front. Frontal area, small and triangular. Frontal carinae one-third longer than broad behind. Antennal insertions exposed. Scapes extend beyond occipital border by fully half their length; second, third and fourth segments of funiculus equal in length, slightly shorter than first, apical barely as long as first. Eyes large, placed about one-third of their diameter from the posterior border. Thorax fully twice as long as broad, sides strongly margined, sutures sharply impressed. Pronotum, across the spines, about one-third broader than long, convex in front, the angles produced laterally as broad sharp spines, sides slightly convex in middle, lateral borders

sharp, dorsum flatly convex. Mesonotum almost as long as broad, broadest in front, flattened behind. Epinotum one-third longer than broad, sides parallel, feebly convex, lateral margins sharp and raised, terminating on each side in a long slender spine, twice as long as broad at base; in profile pronotum and mesonotum, forming an evenly convex arch, suture sharply impressed, dorsum higher than lateral margins, anterior spine very slightly directed forward, anterior fourth of epinotum convex, straight behind, dorsum one-third longer than declivity, terminal spine long, slender and sharp, directed backward very slightly upward, declivity straight, at an obtuse angle. Node as long as broad, square, the four borders straight, posterior angles produced as long thin spines curved backward and slightly outward, fully three times as long as broad at base, between these long outer spines are two tubercles, on some examples these rudimentary spines are distinct, on others they are indistinct; in profile anterior and posterior faces vertical, posterior face twice as high as anterior face, dorsum straight, raised at an obtuse angle, posterior spines slender, directed upward and backward. Gaster almost circular, one-sixth longer than broad. Legs long and slender.

Habitat.—*New South Wales*: Mt. Manfred (Mrs. M. J. Zimmer).

This species belongs to the group containing *P. (C.) macropus* Wheeler and *P. (C.) phyrne* Forel.

Plate XIII.

- Fig. 1. *Phyracaces crassus* sp. nov. Worker.
 Fig. 2. *dromus* sp. nov. Worker.
 Fig. 3. *dromus* sp. nov. Female.
 Fig. 4. *Neophyracaces potteri* sp. nov. Worker.
 Fig. 5. *potteri* sp. nov. Male.
 Fig. 6. *gwynethae* sp. nov. Worker.
 Fig. 7. *gwynethae* sp. nov. Male.
 Fig. 8. *macrops* sp. nov. Worker.
 Fig. 9. *piliventris* sp. nov. Worker.
 Fig. 10. *Rhytidoponera barretti* sp. nov. Worker.
 Fig. 11. *greavesi* sp. nov. Worker.
 Fig. 12. *rufithorax* sp. nov. Worker.
 Fig. 13. *Chalcoponera viridis* sp. nov. Worker.
 Fig. 14. *flavipes* sp. nov. Worker.
 Fig. 15. *hilli* sp. nov. Worker.
 Fig. 16. *pulchra* sp. nov. Worker.
 Fig. 17. *brunnea* sp. nov. Worker.
 Fig. 18. *Iridomyrmex viridigaster* sp. nov. Worker.
 Fig. 19. *Melophorus fulvihirtus* sp. nov. Major Worker.
 Fig. 20. *fulvihirtus* sp. nov. Media Worker.
 Fig. 21. *fulvihirtus* sp. nov. Minor Worker.
 Fig. 22. *Camponotus* (*Tanaemyrmex*) *tricoloratus* sp. nov. Major Worker.
 Fig. 23. *tricoloratus* sp. nov. Minor Worker.
 Fig. 24. *Polyrhachis* (*Myrmhopla*) *exulans* sp. nov. Worker.
 Fig. 25. (*Campomyrma*) *zimmerae* sp. nov. Worker.



Australian Formicidae; new species